

REMARKS

Prior to this communication, claims 1-38, 40-54, and 56 are pending in the application. The Office issued an action on the merits on October 15, 2004, and rejected claims 1-57. Applicant submitted a response to the Office action on November 19, 2004. By that communication, Applicant amended claims 1-3, 6-8, 38, 41, 47, 49, 51, 53 and 56, and cancelled claims 39, 55, and 57. On January 18, 2004, Examiner IP contacted Applicant's representative, Sheldon Wolfe, to discuss the pending claims and the cited references. The Examiner requested Attorney Wolfe to review the claims with the Applicant and consider making further amendments to the claims to provide more structure in the claims. Applicant is submitting this communication in response to the Examiner's request.

In this communication, Applicant is adding claim 58; amending claims 1-3, 6, 24, 29, 29, and 47; and canceling claim 25. The remarks of this communication relate to the amendments made in this communication and are in addition to the remarks made in the communication filed November 19, 2004. Reexamination and reconsideration of claims 1-24, 26-38, 40-54, 56, and 58 in view of the amendments and remarks contained herein are respectfully requested.

Claims 1-57 stand rejected under 35 U.S.C § 102(b) as being anticipated by U.S. Patent No. 3,652,912 (Bordonaro), or U.S. Patent No. 5,592,062 (Bach), or U.S. Patent No. 5,296,795 (Dropp).

Claim 1 recites an electronic switch assembly having a "circuit clamp means." The Applicant amended claim 1 to recite the "circuit clamp means" as suggested by the Examiner. Therefore, Applicant believes claims 1-5 are now in condition for allowance.

Amended claim 6 recites an electric machine (e.g., a motor or a generator) connectable to a power supply. The cited prior art of record does not teach or suggest the electric machine having, among other things, a main winding and an auxiliary circuit in a non-series relationship with the main winding, the auxiliary circuit including an auxiliary circuit element (e.g., a start winding or a start capacitor) and an electronic switch, the electronic switch including, among other things, a power supply having a circuit clamp that obstructs power from powering the

controller when the voltage of the received power is greater than a threshold, thereby preventing current through the auxiliary circuit component.

Rather, the Bordonaro reference discloses a polyphase bidirectional control system suitable for use with AC motors of the squirrel cage type. "The control signal [of the control system] is employed to supervise the application of power to the motor to be controlled while the position error signal is employed to control the direction of operation of the motor." See the Abstract and Fig. 1 of the Bach reference. The Bordonaro reference does not provide any suggestion of the motor having a main winding and an auxiliary circuit (e.g., a start winding circuit or a start capacitor circuit) in a non-series relationship with the main winding, where the auxiliary circuit has the electronic switch assembly recited in claim 1 to control current through the auxiliary circuit component. See, e.g., Fig. 1 of the Application. Therefore, the Bordonaro reference does not teach or suggest claim 6 for the reasons discussed above, and for the additional reasons disclosed in the Amendment dated November 19, 2004 that are not repeated herein.

The Bach reference discloses "a controller for use with AC induction motors utilizes a microcontroller in conjunction with a triac to control the duty cycle of the AC power applied to the motor." See the Abstract and Fig. 1 of the Bach reference. Similar to the discussion above, the Bach reference does not provide any suggestion of the motor having a main winding and an auxiliary circuit (e.g., a start winding circuit or a start capacitor circuit) in a non-series relationship with the main winding, where the auxiliary circuit has the electronic switch assembly recited in claim 1 to control current through the auxiliary circuit component. See, e.g., Fig. 1 of the Application. Therefore, the Bach reference does not teach or suggest claim 6 for the reasons discussed above, and for the additional reasons disclosed in the Amendment dated November 19, 2004 that are not repeated herein.

The Dropps reference discloses a method and apparatus for starting capacitive, start induction run, and capacitive start, capacitive run electric motors. The Dropps reference discloses a motor 14, a switch T1, a Zener diode Z1, a zero cross detect 42, a pulse generator 44, and a controller. The Office asserts Zener diode Z1 and the capacitor C2 form a clamp circuit. However, Zener diode Z1 and the capacitor C2 do not obstruct power from powering the

controller when the voltage of the received power is greater than a threshold. Instead, Zener diode Z1 and capacitor C2 regulate the voltage Vcc. Therefore, the Dropps reference does not teach or suggest the electronic switch assembly of claim 1.

Accordingly, claim 6 is allowable, and Applicant requests indication of the same.

Claims 7-23 and 58 depend, either directly or indirectly, from claim 1 and 6, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 6. Accordingly, claims 7-23 and 58 are allowable, and Applicant requests indication of the same. Additionally, claims 7-23 and 58 include additional limitations that are believed to be separately allowable when combined with the claims from which they depend.

Claim 24 recites a method of controlling an electric machine with power from a power source. The electric machine includes a rotor, a main winding circuit having a main winding, and an auxiliary circuit connected in a parallel relationship with the main winding circuit. The auxiliary circuit includes an auxiliary circuit element and an electronic switch assembly electrically connected in a series relationship such that the electronic switch assembly controls current through the auxiliary circuit element. The electronic switch assembly includes an electronic switch, a controller connected to the electronic switch to control the electronic switch, and a power supply connected to the power source and the controller. The method includes the acts of connecting the electronic switch assembly to the power source, powering the power supply, determining at the power supply whether the voltage of the power is greater than a value, obstructing the power from powering the controller when the voltage is greater than the value, and preventing current through the auxiliary circuit component in response to the obstructing act. Applicant asserts that the cited prior art does not teach or suggest, among other things, determining at the power supply whether the voltage of the power is greater than a value, obstructing the power from powering the controller when the voltage is greater than the value, and preventing current through the auxiliary circuit component in response to the obstructing act. If the Office disagrees, then Applicant requests a more detailed analysis of the cited references in order for Applicant to respond.

Claims 26-28 depend, either directly or indirectly, from claim 24, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 24.

Accordingly, claims 26-28 are allowable, and Applicant requests indication of the same.

Additionally, claims 26-28 include additional limitations that are believed to be separately allowable when combined with the claims from which they depend.

Claim 29 specifies a method of controlling an electric machine with power from a power source. The electric machine includes a rotor, a main winding, and an auxiliary circuit connected in a non-series relationship with the main winding. The auxiliary circuit includes an auxiliary circuit element and a switch assembly electrically connected in a series relationship such that the switch assembly controls the current through the auxiliary circuit element. The switch assembly includes a switch and a controller connect to the electronic switch to control the electronic switch. The method includes the acts of connecting the motor to the power source, allowing current through the electronic switch, monitoring the current, and preventing current through the electronic switch when the monitored current flares. Applicant asserts that the cited prior art does not teach or suggest, among other things, monitoring the current, and preventing current through the electronic switch when the monitored current flares. If the Office disagrees, then Applicant requests a more detailed analysis of the cited references in order for Applicant to respond.

Before proceeding further, Applicant notes that the Dropps patent monitors the auxiliary voltage of the auxiliary winding. When the auxiliary voltage reaches a calibratable cut-out voltage the triac is disabled until the auxiliary winding voltage decreases to a level below a calibratable cut-in voltage. See Abstract. However, monitoring the auxilliary voltage of the auxiliary winding is not the same as monitoring the current through the electronic switch. As is known in the motor art, the current through an auxiliary winding current of a motor is not proportionally related to the voltage applied to the auxiliary winding circuit. Therefore, the Dropps reference does not explicitly teach or inherently suggest monitoring the circuit through the electronic switch. It is also noted that the Dropps reference does not teach or suggest preventing current through the electronic switch when the monitored current flares. See, for example, ¶ [0036] of the Application for a discussion regarding current flare.

Claims 30-37 depend, either directly or indirectly, from claim 29, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 29.

Accordingly, claims 30-37 are allowable, and Applicant requests indication of the same.

Additionally, claims 30-37 include additional limitations that are believed to be separately allowable when combined with the claims from which they depend.

Amended claim 38 recites an electric machine connectable to a power supply. The electric machine includes a rotor, a main winding circuit having a main winding, and an auxiliary winding circuit connected in a parallel relationship with the main winding circuit. The auxiliary winding circuit includes an auxiliary circuit element and a switch assembly connected in a series relationship such that the switch assembly controls the current through the auxiliary circuit element. The switch assembly includes a switch, and a controller connected to the switch to control the switch. The controller includes a current sensor that senses a current through the switch, a scalar that generates a threshold based on the sensed current, and decision logic that controls the switch based on the sensed current and the threshold. Applicant asserts that the cited prior art does not teach or suggest, among other things, a controller having a current sensor that senses a current through the switch, a scalar that generates a threshold based on the sensed current, and decision logic that controls the switch based on the sensed current and the threshold. Applicant also asserts that the cited prior art does not teach or suggest that the scalar generates a threshold having a relation to the sensed current such that the decision logic detects when the sensed current flares. If the Office disagrees, then Applicant requests a more detailed analysis of the cited references in order for Applicant to respond.

Claims 39-46 depend, either directly or indirectly, from claim 38, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 38.

Accordingly, claims 39-46 are allowable, and Applicant requests indication of the same. Additionally, claims 39-46 include additional limitations that are believed to be separately allowable when combined with the claims from which they depend.

Amended claim 47 recites an electric machine connectable to a power supply. The electric machine includes a rotor, a main winding, and an auxiliary circuit connected in a non-series relationship with the main winding. The auxiliary circuit includes an auxiliary circuit component and an electronic switch assembly electrically connected in a series relationship such that the electronic switch assembly controls the current through the auxiliary circuit element.

The electronic switch assembly includes an electronic switch; a circuit control having a current sensor that senses a current through the switch; and decision logic connected to the generator, the circuit control, and the electronic switch. The circuit control provides a second signal based on the sensed current. The decision logic receives the first and second signals and generates a control signal that selectively controls the electronic switch based on the first and second signals. Applicant asserts the cited prior art does not teach or suggest, among other things, decision logic connected to the generator, the circuit control, and the electronic switch, where the decision logic receives the first and second signals and generates a control signal that selectively controls the electronic switch based on the first and second signals, wherin the second signal is based on a sensed current through the electronic switch. If the Office disagrees, then Applicant requests a more detailed analysis of the cited references in order for Applicant to respond.

Claims 48-57 depend, either directly or indirectly, from claim 47, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 47. Accordingly, claims 48-57 are allowable, and Applicant requests indication of the same. Additionally, claims 48-57 include additional limitations that are believed to be separately allowable when combined with the claims from which they depend.

CONCLUSION

Entry of the Amendment and allowance of claims 1-38, 40-54, and 56 are respectfully requested. The undersigned is available for telephone consultation at any time during normal business hours.

Respectfully submitted,



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